

### AMENDMENT TO THE CLAIMS

Claim 1 (canceled).

Claim 2 (canceled).

Claim 3 (currently amended): An amplifier arrangement as claimed in claim [[2]] 16 wherein the spacing between adjacent [[paths]] spaced positions is constant.

Claim 4 (canceled).

Claim 5 (canceled).

Claim 6 (currently amended): An amplifier arrangement as claimed in claim [[4]] 16 wherein one of the first transmission medium and the second transmission medium comprises a transmission line.

Claim 7 (original): An amplifier arrangement as claimed in claim 6 wherein each of the first transmission medium and the second transmission medium comprises a coaxial cable.

Claim 8 (original): An amplifier arrangement as claimed in claim 6 wherein each of the first transmission medium and the second transmission medium comprises a strip line.

Claim 9 (original): An amplifier arrangement as claimed in claim 6 wherein the first transmission medium comprises a transmission line and the second transmission medium comprises a two dimensional conductive layer.

Claim 10 (currently amended): An amplifier arrangement as claimed in claim 6 wherein the first transmission medium comprises a transmission line and the second transmission medium comprises a three-dimensional cavity comprising signal absorbent means.

Claim 11 (canceled).

Claim 12 (canceled).

Claim 13 (canceled).

Claim 14 (canceled).

Claim 15 (canceled).

Claim 16 (new): A noise suppressing broadband pulse amplifier arrangement comprising:

- (a) a first signal transmission medium extending between a first end thereof providing an input for the amplifier arrangement and a second end thereof, the medium having a constant impedance along the length thereof;
- (b) a second signal transmission medium extending between a first end thereof, and a second end thereof and which end provides an output for the arrangement, the second medium having a constant impedance along the length thereof;
- (c) a plurality of amplifiers connected in respective branches extending between respective spaced positions on the first medium and respective spaced positions on the second medium to provide a plurality of signal paths for an input signal between the input and the output of the arrangement and wherein all the paths have the same signal propagation delay time;
- (d) non-resonant coupling between the branches and the first medium and the second medium; and
- (e) a termination element at the first end of the second medium and a termination element at the second end of the first medium;

so that at said spaced positions on the second medium amplified signals in the branches are coherently added and caused to propagate towards the output, incoherent noise generated by the amplifiers is incoherently added and divided into noise propagating towards the termination element of the second medium and noise propagating towards the output and so that the noise propagating towards said termination element is dissipated, thereby to amplify the input signal and to suppress the noise.

Claim 17 (new): A method of amplifying an input signal utilizing an amplifier arrangement and suppressing noise generated by the amplifier arrangement, the method comprising the steps of:

- (a) causing the signal to be fed to the amplifier arrangement via an input for the signal at a first end of a first signal transmission medium of the arrangement, the medium extending between the first end and a second end thereof, the medium having a constant impedance along the length thereof;
- (b) utilizing a second signal transmission medium of the arrangement which extends between a first end thereof and a second end thereof to provide an output for the signal from the arrangement at the second end thereof, the second medium having a constant impedance along the length thereof;
- (c) utilizing non-resonant coupling to feed the input signal to a plurality of amplifiers in respective branches extending between respective spaced positions on the first medium and respective spaced positions on the second medium, thereby to provide a plurality of signal paths for the input signal between the input and the output of the arrangement and wherein all the paths have the same signal propagation delay time;
- (d) providing a termination element at the first end of the second medium;
- (e) causing at said spaced positions on the second medium amplified signals in the branches coherently to be added and to propagate towards the output, and incoherent noise generated by the amplifiers incoherently to be added and to be divided into noise propagating towards the termination element and noise propagating towards the output; and
- (f) causing the noise propagating towards the termination element to be dissipated, thereby to amplify the input signal and to suppress the noise generated by the amplifier arrangement.

Claim 18 (new): An amplifier arrangement as claimed in claim 16 for a pulse having a full width half maximum (FWHM) parameter and wherein the spacing between adjacent

positions is at least equal to a distance through which the pulse would travel in a time corresponding to said FWHM parameter.